

What is claimed is:

1. An inkjet printer head comprising:
 - a semiconductor wafer having an opening extending therethrough, said opening defining a nozzle for ejecting ink;
 - an ink cartridge disposed on one side of the semiconductor wafer, the inside of said ink cartridge communicating with said opening in said semiconductor wafer so that ink is supplied from said ink cartridge to the nozzle of said semiconductor wafer; and
 - an ink ejection unit interposed between said ink cartridge and said semiconductor wafer and operable to force ink from said nozzle.
2. The inkjet printer head as claimed in claim 1, wherein said ink ejection unit includes a resistor.
3. The inkjet printer head as claimed in claim 1, wherein said ink ejection unit includes a piezoelectric element.
4. An inkjet printer head comprising:
 - a semiconductor wafer having an opening extending therethrough, said opening defining a nozzle for ejecting ink and including a hemispherical cavity that forms a hemispherical portion of the nozzle;
 - an ink cartridge disposed on one side of said semiconductor wafer and communicating with the nozzle of said semiconductor wafer so that ink

is supplied from said ink cartridge to the nozzle;

a supporting layer interposed between said ink cartridge and said semiconductor wafer, the supporting layer having an opening located over the hemispherical portion of said nozzle; and

a patterned resistor interposed between said supporting layer and said ink cartridge and disposed over said nozzle.

5. The inkjet printer head as claimed in claim 4, wherein the supporting layer is of at least one material selected from the group consisting of silicon oxide, silicon nitride and silicon carbide.

6. The inkjet printer head as claimed in claim 4, wherein said nozzle has a lower portion disposed beneath the hemispherical portion thereof, the lower portion of said nozzle having central axis passing through the opening in said supporting layer.

7. The inkjet printer head as claimed in claim 4, and further comprising a protective layer interposed between said supporting layer and said ink cartridge, said protective layer covering said patterned resistor.

8. The inkjet printer head as claimed in claim 7, wherein said protective layer is of at least one material selected from the group consisting of silicon oxide, silicon nitride, silicon carbide, and tantalum.

9. A method of fabricating an inkjet printer head, comprising:

providing an ink ejection unit having an opening therethrough on a semiconductor wafer, whereby the opening exposes the top surface of the semiconductor wafer;

etching the semiconductor wafer at the exposed top surface thereof to form an opening in said wafer, the opening constituting a nozzle through which ink is to be injected by the printer head; and

attaching an ink cartridge to the semiconductor wafer over the top surface thereof in order to supply ink to the nozzle.

10. The method as claimed in claim 9, wherein the forming of the nozzle comprises isotropically and anisotropically etching the semiconductor wafer via said opening in the ink ejection unit.

11. The method as claimed in claim 9, wherein the providing of the ink ejection unit comprises:

forming a supporting layer on the semiconductor wafer,

forming a resistor in a pattern on the supporting layer,

forming a protective layer over the semiconductor wafer on which the resistor has been formed, and

sequentially patterning the protective layer and the supporting layer to form said opening of the ejection unit.

12. The method as claimed in claim 11, wherein the forming of the

supporting layer comprises forming a layer of at least one material selected from the group consisting of silicon oxide, silicon nitride, silicon carbide, and tantalum on the semiconductor wafer.

13. The method as claimed in claim 11, wherein the forming of the resistor comprises forming a layer of tantalum aluminum on the supporting layer, and patterning the layer of tantalum aluminum.

14. The method as claimed in claim 11, wherein the forming of the protective layer comprises forming at least one layer of silicon oxide, silicon nitride, and silicon carbide over the semiconductor wafer.

15. The method as claimed in claim 9, wherein the forming of the ink ejection unit comprises forming a layer piezoelectric material on the semiconductor wafer.

16. The method as claimed in claim 9, wherein the etching of the semiconductor wafer comprises:

isotropically etching a portion of the semiconductor wafer exposed through the opening in the ink ejection unit so as to form a hemispherical cavity constituting a hemispherical upper portion of the nozzle under the ink ejection unit, and

subsequently anisotropically etching the semiconductor wafer through the opening in the ink ejection unit so as to form a lower portion of the

nozzle extending from the bottom of said hemispherical cavity.

17. The method as claimed in claim 16, wherein the isotropic etching of the semiconductor wafer is performed using an etch recipe having an etch selectivity with respect to the ink ejection unit.

18. The method as claimed in claim 16, wherein the isotropic etching of the semiconductor wafer is performed using xenon difluoride as an etch gas.

19. The method as claimed in claim 16, wherein the etching of the semiconductor wafer further comprises isotropically etching the wafer after said lower portion of the nozzle is formed to round off a part of the wafer at the boundary where the lower portion and the upper portion of the nozzle meet.